

CLAIMS

1. A system including:

5 a plurality of devices (142,150,152,154,156);

administration means (142,118) for allowing selected devices (150,156) to be associated together as a group by providing each device with security data and identification data, the security data of each device being interpretable by each other device within the group, particular modes of communication only being allowed between devices within the group having such security data, and the identification data identifying each device within the group for the purpose of delivering data to that device but not necessarily being recognisable by other devices not in said group; and

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routing means (110,116) having an external identifier recognisable by devices not in said group for routing communications via a communication medium (140) and for communicating data originating from one device (150) within said group received via said communication medium (140) by means of the external identifier to another device (152) within said group using the identification data.

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25 2. The system of claim 1, comprising a plurality of said routing means.

3. The system of claim 2, wherein said routing means are operable to route said data securely therebetween via said communication medium.

4. The system of any one of the preceding claims, wherein the data is transmitted by IPsec.
5. The system of any one of the preceding claims, wherein the external identifier is a unique public IP address or telephone number.
6. The system of any one of the preceding claims, wherein the identification data comprises a respective local IP address assigned to each device by the administration means.
- 10 7. The system of any one of the preceding claims, wherein at least one of the devices comprises a mobile telecommunications terminal and is operable to communicate with an associated one of the routing means via a mobile telecommunications network.
- 15 8. The system of claim 7, wherein the routing means includes means for authenticating the mobile terminal.
9. The system of claim 8, wherein the authenticating means is operable
20 to authenticate the mobile terminal using data relating to the subscription of the mobile terminal with the mobile telecommunications network.
10. The system of claim 9, wherein the mobile telecommunications terminal includes a smart card storing data for exchange with said
25 authentication means.
11. The system of any one of claims 7 to 10, wherein the mobile telecommunications network is a GSM network.

12. The system of any one of claims 7 to 10, wherein the mobile telecommunications network is a UMTS (3G) network.
13. The system of any one of claims 7 to 12, wherein data is exchanged
5 between the mobile telecommunications terminal and the routing means by a GPRS link.
14. The system of any one of the preceding claims, wherein data is exchanged between the mobile telecommunications terminal and the
10 routing means using Session Initiation Protocol (SIP).
15. The system of any one of claims 2 to 14, wherein the routing means are operable to exchange external identifiers therebetween.
- 15 16. The system of any one of claims 2 to 15, including means for generating an IP address for enabling communications to be routed between respective ones of the routing means.
17. The system of any one of the preceding claims, wherein each device
20 stores a key.
18. The system of any one of the preceding claims, wherein the routing means is operable to generate a public-private key pair.
- 25 19. The system of claims 17 and 18, wherein the device associated with the routing means is operable to generate a certificate using the public key of the routing means and the device's key.
20. The system of claim 19, wherein the routing means is operable to
30 authenticate itself with the administration means using said certificate.

21. A method of configuring an IP address to allow data exchange between a first device "A" and a second device "B" that are associated with one another in a group, the group having a group identifier "Group-ID", and
5 each device having unique identifier "Group-Member-ID" within the group, and where the devices are coupled to one another for communication therebetween via respective communication hubs "Hub-A" and "Hub-B", the method including providing each of said devices with a unique IP address within said group.

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22. The method of claim 21, including:

allocating a range of IP addresses as follows: first octet of the IP address=10 (Fixed).X.Y.Z; where X,Y,Z is calculated as follows:

$$X = [\text{Hash}(\text{Group-ID})][0,1,2\dots 15],$$

15 $Y = [\text{Hash}(\text{IDn})][7,8,\dots 15]$

$$Z = [\text{Hash}(\text{Group-Member-ID})][0,1,2\dots 7];$$

where the IDn is either Group-Member-ID or an identifier of a device acting as a gateway device for a plurality of the devices,

where the final IP address=10.X.Y.Z, and

20 where "Hash" is a hash function.

23. The method of claim 22, wherein "Hash" is a MD5 algorithm.

24. A method of enabling communication between a plurality of devices
25 (142,150,152,154,156), the method including associating selected devices (150,152) together as a group by providing each device (150,152) with security data and identification data, the security data of each device being interpretable by each other device within the group, particular modes of communication only being allowed between devices within the group
30 having such security data, and the identification data identifying each

device within the group for the purpose of delivering data to that device but not necessarily being recognisable by other devices not in said group; and routing data originating from one device (150) within said group by routing means (110,116), having an external identifier recognisable by devices not
5 in said group for routing communications via a communication medium (140), which communicates that data received via the communication medium (140) by means of the external identifier to another device (152) within said group using the identification data.

10 25. The method of claim 24, including providing a plurality of said routing means.

26. The method of claim 25, wherein said routing means route said data securely therebetween via said communication medium.

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27. The method of any one of claims 24 to 26, wherein the data is transmitted by IPsec.

28. The method of any one of claims 24 to 27, wherein the external
20 identifier is a unique public IP address or telephone number.

29. The method of any one of claims 24 to 28, wherein the identification data comprises a respective local IP address assigned to each device.

25 30. The method of any one of the preceding claims, wherein at least one of the devices comprises a mobile telecommunications terminal which communicates with an associated one of the routing means via a mobile telecommunications network.

31. The method of claim 30, wherein the routing means authenticates the mobile terminal.
32. The method of claim 31, wherein the mobile terminal is
5 authenticated using data relating to the subscription of the mobile terminal with the mobile telecommunications network.
33. The method of claim 32, wherein a smart card associated with the mobile telecommunications terminal stores data to perform said
10 authentication.
34. The method of any one of claims 30 to 33, wherein the mobile telecommunications network is a GSM network.
- 15 35. The method of any one of claims 28 to 33, wherein the mobile telecommunications network is a UMTS (3G) network.
36. The method of any one of claims 30 to 35, wherein data is exchanged between the mobile telecommunications terminal and the
20 routing means by a GPRS link.
37. The system of any one of the claims 24 to 32, wherein using Session Initiation Protocol (SIP).
- 25 38. The method of any one of claims 25 to 37, wherein respective ones of the routing means exchange external identifiers therebetween.
39. The method of any one of claims 25 to 38, including generating an IP address for enabling communications to be routed between respective
30 ones of the routing means.

40. The method of any one of the preceding claims, wherein each device stores a key.

5 41. The method of any one of the preceding claims, wherein the routing means generates public-private key pairs.

42. The method of claims 40 and 41, wherein the device associated with the routing means generates a certificate using the public key of the routing
10 means and the device's key.

43. The method of claim 42, wherein the routing means authenticates itself within the group using said certificate.

15 44. A routing node (118) for enabling communication between a plurality of devices (142,150,152,154,156) which are associated together as a group by providing each device with security data and identification data, the security data of each device being interpretable to each other device within the group, particular modes of communication only being allowed
20 between devices within the group having such security data, and the identification data identifying each device within the group for the purpose of delivering data to that device but not necessarily being recognisable by other devices not in said group; wherein the routing node (118) has an external identifier recognisable by devices not in said group for routing
25 communications via a communication medium (140), and communicates data originating from one device (150) within said group received via said communication medium (140) by means of the external identifier to another device (152) within said group using the identification data.

45. The system, method or routing node of any one of the preceding claims, wherein the communication medium comprises the Internet.